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VERIFICATION OF A TRANSLATION

I, the below named translator, hereby declare that:

My name and post office address are as stated below;

That I am knowledgeable in the English language and in the Japanese language and believe the attached English translation to be a true and complete translation of the below identified document.

The document for which the attached English translation is being submitted is the Japanese Patent Application Nos. 09-001866 and 09-010154. The former Japanese language document was filed in Japan on January 9, 1997 and the latter document was filed on January 23, 1997.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of the translator: Aki Ando

Post Office Address: 132 Pelton Ave.
Staten Island, NY 10310

Signature of the translator: Aki Ando

Date: 11-13-1997



Classification Number = 96P02444 NNN99-999999

-1-

[Name of the Document] Abstract

[Abstract]

[Issue]

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The present invention relates to an electronic camera and has as its objective the providing of an electronic camera that makes it possible to conduct a check of the action of each function of the camera easily as well as with certainty.

[Means of solution]

It is structured such that it has Image-receptor Means 1 that takes picture of the subject and creates images, Recording Means 2 that records the image created by Image-receptor Means 1 on a recording medium, Playback Means 3 that plays back the image that is recorded on the recording medium, Mode Selection Means 4 that selects the diagnosis-of-action mode by an external selection operation of diagnosis-of-action mode, and Test-of-action Means 5 that carries out a test of the action of each function of the camera when the diagnosis-of-action mode is selected by Mode Selection Means 4.

[Selected Drawing] Figure 1

[Name of the Document] Specification

[Name of the Invention] Electronic Camera

[Scope of the Patent Claim]

[Claim 1]

An electronic camera characterized by having an image-receptor means that takes pictures of the subject and creates images,

a recording means that records the image created by said image-receptor means on a recording medium,

a playback means that plays back the image that is recorded on the recording medium,

a mode selection means that selects a diagnosis-of-action mode by an external selection operation of diagnosis-of-action mode,

and an test-of-action means that carries out a test of the action of each function of the camera when the diagnosis-of-action mode is selected by said mode selection means.

[Claim 2]

The electronic camera described in Claim 1 characterized wherein

when a photographic function is designated in correspondence to an external operation, in accordance to the photographic function, said image-receptor means photographically captures the subject and creates the image,

and in the state that said diagnosis-of-action mode is selected, and a photographic function of the image-receptor means is designated, said test-of-action means carries out a

test of the action of the photographic function.

[Claim 3]

The electronic camera described in Claim 1 characterized wherein
when a playback function is designated in correspondence to an external operation,
said playback means plays back an image that is recorded on the recording medium, in the
state of playback that corresponds to the playback function,

and in the state that said diagnosis-of-action mode is selected and the playback
function of the playback means is designated through said external operation, said test-of-
action means carries out the test of the action of the playback function.

[Claim 4]

The electronic camera described in either one of Claims 1 or 3 characterized
wherein

said test-of-action means displays the results of said test of the action on the
display screen that is for displaying the image played back by said playback means.

[Detailed Description of the Invention]

[0001]

[Field of the Invention]

The present invention pertains to an electronic camera in particular, an electronic
camera that has a diagnosis-of-action mode that conducts a test of the action of each
function of the camera.

[0002]

[Prior Art]

In general, electronic cameras that record still images or moving images using image-receptor elements have been available. It is possible for an electronic camera to not only record a photographic image but also to be able to process and edit photographic images, therefore, currently, the fields of usage of electronic cameras are rapidly expanding.

[0003]

[Problems Solved by Invention]

Opportunities to use electronic cameras for photographic purposes instead of using silver-halide cameras are increasing and, for example, they are being used for picture-taking on family trips and at school events.

[0004]

There is no second chance to take pictures on trips and at school events and, therefore, operators feel very anxious about whether "the camera is working properly."

Therefore, electronic cameras with the prior art have an LCD screen so that operators can check the image during or after picture taking. However, with only a confirmation during or after the photo shooting, there are cases, for example, if the camera is broken, when people start shooting without noticing that a problem exists.

[0005]

Therefore, operators had to conduct a check of the action of the camera each time by conducting a test shooting before they really started taking pictures.

However, even if the camera looks as if it is working normally, sometimes, there are cases when there actually are malfunctioning parts for a portion of the camera

functions, and therefore, it is difficult for the operator to judge whether all the functions of the camera will work normally or not.

[0006]

In order to solve the above-described problems, the invention described in Claims 1 to 4 has the purpose of providing an electronic camera such that it is possible to conduct a check of the action of each function of the camera easily and with certainty.

[0007]

[Means to Solve the Problems]

Figure 1 shows the principle block diagram of the invention described in Claim 1.

[0008]

The invention described in Claim 1 is structured such that it has Image-receptor Means 1 that takes picture of the subject and creates images, Recording Means 2 that records the image created by Image-receptor Means 1 on a recording medium, Playback Means 3 that plays back the image that is recorded on the recording medium, Mode Selection Means 4 that selects the diagnosis-of-action mode by an external selection operation of diagnosis-of-action mode, and Test-of-action Means 5 that carries out a test of the action of each function of the camera when the diagnosis-of-action mode is selected by Mode Selection Means 4.

[0009]

Figure 2 shows the principle block diagram of the invention described in Claim 2.

The invention described in Claim 2 is the electronic camera described in Claim 1 with characteristics such that when a photographic function is designated in

correspondence to an external operation, in accordance with the photographic function, Image-receptor Means 1 takes a picture of the subject and creates the image, and in the state that said diagnosis-of-action mode is selected, and a photographic function of the Image-receptor Means 1 is designated, Test-of-action Means 5 carries out the test of the action of the photographic function.

[0010]

Figure 3 shows the principle block diagram of the invention described in Claim 3.

The invention described in Claim 3 is the electronic camera described in Claim 1 with characteristics such that when a playback function is designated in correspondence to an external operation, Playback Means 3 plays back an image that is recorded on the recording medium, in the state of playback that corresponds to the playback function, and in the state that the diagnosis-of-action mode is selected and the playback function of the Playback Means 3 is designated through said external operation, Test-of-action Means 5 carries out the test of the action of the playback function.

[0011]

Figure 4 shows the principle block diagram of the invention described in Claim 4.

The invention described in Claim 4 is the electronic camera described in either one of Claims 1 or 3 with characteristics such that said Test-of-action Means 5 displays the results of said test of the action on the display screen that is for displaying the image played back by Playback Means 3.

[0012]

(Effect)

In the electronic camera described in Claim 1, Image-receptor Means 1 takes a picture of the subject and creates an image. Recording Means 2 records the image created by Image-receptor Means 1 on a recording medium. Playback Means 3 plays back the image recorded on the recording medium.

[0013]

When an operator conducts the selection operation of the diagnosis-of-action mode, Mode Selection Means 4 selects the diagnosis-of-action mode and the electronic camera is switched into diagnosis-of-action mode.

When the camera is switched to diagnosis-of-action mode, Test-of-action Means 5 automatically carries out a test, which is setup in advance, of the action of each function of the camera.

With the electronic camera described in Claim 2, a photographic function is designated by an external operation by the operator, and in accordance with the photographic function, Image-receptor Means 1 takes a picture of the subject and creates an image.

[0014]

When the camera is in the state of diagnosis-of-action mode, and a photographic function is designated, Test-of-action Means 5 carries out a test, which is setup in advance, of the action of the photographic function. Therefore, with the electronic camera described in Claim 2 a test of the action of the photographic function that is designated by the operator is carried out.

With the electronic camera described in Claim 3, a playback function is designated

in correspondence with an external operation and Playback Means 3 replays the image in the Playback state (normal play, fast forward, etc.) that corresponds to the Playback function.

[0015]

When the camera is in the diagnosis-of-action mode state, when a playback function is designated, Test-of-action Means 5 carries out a test, which is setup in advance, of the action of the playback function. Therefore, the electronic camera described in Claim 3, carries out a test of the action of the playback function designated by the operator.

[0016]

With the electronic camera described in Claim 4, Test-of-action Means 5 carries out a test, which is setup in advance, of the action of each function of the camera, and displays the results of the test of the action (for example, whether each function of the camera is normal or not) on the display screen (a screen for Playback Means 3 to replay and display the image).

[0017]

[Embodiment of the Invention]

An embodiment of the present invention is explained using drawings as follows.

[0018]

Figure 5 is a structural block diagram of the present embodiment. Figure 6 shows the exterior of the present embodiment. The present embodiment corresponds to the invention described in Claims 1 to 4.

In Figure 5, Main Body 21 is comprised of Camera Portion 22. Inside Camera Portion 22, Photographic Lens 23 is located and Image-Receptor Element 24 is arranged at the location where the transmitted light through Photographic Lens is received. The image signal from Image-receptor Element 24 is input into MPU 26 via A/D Conversion Portion 25.

[0019]

MPU 26 is connected to Photo-magnetic Recording Medium 28 via Data Access Portion 27. This Photo-magnetic Recording Medium 28 is disc-shaped and it is possible to conduct random access and is detachable from Main Body 21.

In addition, the image output of MPU 26 is input to LCD Portion 29. LCD Portion 29 has Touch Screen 30 mounted on it, and the pressing operation sensed by Touch Screen 30 is input to MPU 26 as location information.

[0020]

Furthermore, the control output of MPU 26 is input to Lens Driving Portion 31 and Exposure Control Portion 32.

Also, the output of Operation Buttons 33 is input to MPU 26. Representing these Operation Buttons 33, there are the operation buttons shown in Figure 6, mounted on Main Body 21. Arranged on the upper portion of Main Body 21, there are Photography Button 34, Focus Button 38, Zoom Button 36, Exposure Button 37, and Mode Switching Button 38. In addition, mounted on the side portion, are External Output Terminal 40 and MO Attachment Portion 41.

[0021]

MPU 26 is comprised of a signal processing function that conducts image processing of the image signal of A/D Conversion Portion 25 and the image read out from Photo-magnetic Recording Medium 28, a control function that controls Data Access Portion 27, Lens Driving Portion 31 and Exposure Control Portion 32, an operation recognition function that recognizes the operation that is input through Touch Screen 30 and Operation Buttons 33, an image creation function that creates the image that is displayed on LCD Portion 29, a mode selection function that conducts mode selection by switching the operation of Mode Switching Button 38 and the diagnostic function that conducts the diagnosis of whether each function of the camera is working normally or not.

[0022]

The correspondence between the invention described in Claim 1 and the present embodiment is as follows.

Image-receptor Means 1 corresponds to Photographic Lens 23, Image-receptor Element 24, A/D Converter 25, and the signal processing function of MPU 26. Recording Means 2 corresponds to the control function of MPU 26 and Data Access Portion 27. Playback Means 3 corresponds to the signal processing function, controlling function, image creation function of MPU 26 and Data Access Portion 27. Mode Selection Means 4 corresponds to the operation recognition function and mode selection function of MPU 26. Test-of-action Means 5 corresponds to the signal processing function, controlling function and diagnostic function of MPU 26.

[0023]

As for the correspondence between the invention described in Claim 2 and the

present embodiment, in addition to the correspondence described above, Image-receptor Means 1 corresponds to the controlling function and operation-recognition function of MPU 26.

As for the correspondence between the invention described in Claim 3 and the present embodiment, in addition to the correspondence described above, Playback Means 3 corresponds to the operation-recognition function of MPU 26.

[0024]

As for the correspondence between the invention described in Claim 4 and the present embodiment, in addition to the correspondence described above, Test-of-action Means 5 corresponds to the image creation function of MPU 26.

The action of the present embodiment is described using Figures 5 to Figure 10 as follows.

[0025]

First, "Standard Mode" is described.

When it is switched to Standard Mode by Mode Switching Button 38, MPU 26 selects Standard Mode and the camera is set to Standard Mode. In Standard Mode, the initial screen shown in Figure 7 is displayed on LCD Portion 29. On the bottom portion of the screen, there are operation buttons that are displayed for image playback. They are Reverse Button 42, Fast-Forward Button 43, Frame-Reverse Button 44, Pause Button 45, Frame-Advance Button 46, Reverse-Play Button 47, Stop Button 48 and Play Button 49, starting from the left side.

[0026]

In addition, when the call button for image quality adjustment (not shown in the figure) is pressed, the image quality adjustment screen shown in Figure 8 is displayed on LCD Portion 29. On the bottom of the screen, there are Brightness Adjustment Button 50 and W. Balance Adjustment Button 51 displayed as image quality adjustment buttons.

All the operations of these operation buttons are conducted through Touch Screen 30 by utilizing well-known technology, such as, a GUI (Graphical User Interface). In other words, on LCD Portion 29, operation buttons are displayed as objects, and MPU 26 senses an operator's touching activity of these objects and depending on the operation, it plays back the image and adjusts the image.

[0027]

In Standard Mode, standard actions are carried out by the operation of Operation Buttons 33 and the operation buttons for image replay, 42 to 49, and Image quality adjustment buttons 50 and 51.

In other words, for example, when Photography Button 34 is pressed, Image-receptor Element 24 conducts the photo-electric conversion of the image of the subject obtained through Photographic Lens 23, and the photo-electric signal is converted into a digital signal with A/D Conversion Portion 25. In addition, at MPU 26, image processing, such as, gamma ray adjustments, outline enhancement, and white balance adjustments are conducted and the data are compressed and encoded. The encoded image data is recorded as an image file on Photo-magnetic Recording Medium 28 via Data Access Portion 27.

[0028]

When Focus Button 35, Zoom Button 36 or Exposure Button 37 are operated, MPU 26 recognizes their operation and in correspondence to the operation, it controls Lens Driving Portion 31 and Exposure Control Portion 32, and conducts focus adjustment, zoom control and exposure adjustment.

[0029]

In addition, when the operation buttons for image replaying, 42 to 49, are operated, in correspondence to the operation, MPU 26 reads out the image from Photomagnetic Recording Medium 28 and plays it back. For example, when Fast Forward Button 43 is pressed, MPU 26 creates a display image in which frames are dropped and displays it on LCD Portion 29.

Furthermore, when Brightness Adjustment Button 50, or W. Balance Adjustment Button 51 are pressed, in correspondence to the operation, MPU 26 conducts gain control of the photographic image, the brightness of the replayed image and the color signals.

[0030]

Next, the "Diagnosis-of-Action Mode" is explained.

When it is switched to the diagnosis-of-action mode using Mode Switching Button 38, the camera is set to the diagnosis-of-action mode. In this diagnosis-of-action mode, a test, which is setup in advance, is carried out for the action of each function of the camera that corresponds to the operation buttons. This test of the action is carried out with the sequence program that is stored in the internal ROM of MPU 26.

[0031]

For example, when the photograph button is pressed. MPU 26 recognizes that the photograph button has been pressed and reads the sequence program for the test of the action (Figure 9, Step S1) and carries out the following test of the action of the photographic functions.

After a set period of picture taking, the image of the subject obtained via Photographic Lens 23 is compressed and encoded, and then converted into image data (Figure 9, Steps S2 and S3). The image data is recorded in the blank regions of Photo-magnetic Recording Medium 28 as an image file for the test (Figure 9, Steps S4 and S5).

[0032]

When the image file for the test is recorded on Photo-magnetic Recording Medium 28 and the test of the action is completed, MPU 26 creates the message, "The photographic function is normal." and displays it on LCD Portion 29 (Figure 9, Step S6). Next, MPU 26 accesses the file label of the image file for the test via Data Access Portion 27 and deletes the image file for the test by rewriting the file attribute to the overwrite attribute (Figure 9, Step S7).

[0033]

When there is some abnormality during the photographic action and if there is some problems, such as, the subject image is not converted to the image data or the image file for the test is not recorded, MPU 26 displays the message, "There is a problem with the photographic function." (Figure 9, Step S8) and aborts the photographic action.

Next, for example, when Zoom Button 36 is pressed. MPU 26 recognizes that

Zoom Button 36 has been pressed and carries out a test of the action of the zooming function with the sequence program.

[0034]

MPU 26 drives Photographic Lens 23 from maximum telephoto to maximum wide-angle via Lens Driving Portion 31.

In MPU 26, the lens positions at maximum telephoto and maximum wide-angle and the duration of the zooming from maximum telephoto to maximum wide-angle are stored in the internal ROM in advance. By comparing and analyzing the stored data with the actual lens position and actual zoom duration that are sent from the zoom encoder, a determination is made about whether the zooming action was carried out properly or not. When the zooming action has been conducted properly, MPU 26 displays the message, "The zoom function is normal." on LCD Portion 29.

[0035]

When there is some problem during the zooming action and in the case that the lens is not driven from maximum telephoto to maximum wide-angle or the zoom speed is slow, the message, "There is a problem with the zoom function" is displayed on LCD Portion 29 and the zooming action is aborted.

In addition, when Playback Button 49 is pressed, MPU 26 recognizes the operation and along with the sequence program for the test of the action, a test of the action of the playback function is carried out.

[0036]

In the blank region on Photo-magnetic Recording Medium 28, a sample image file

has been stored in advance. MPU 26 accesses the file label and searches for the sample image file via Data Access Portion 27. Next, MPU 26 reads out the sample image data via Data Access Portion 27, creates a display image and displays it on LCD Portion 29. When all the sample image data are read out and the playback action is completed, MPU 26 displays the message image, "The playback function is normal." on LCD Portion 29.

[0037]

When there is some abnormality during the zooming action, and in the case that there are problems with the readout action of the image data or action of creation of the display image, the message, "There is a problem with the zoom function" is displayed on LCD Portion 29 and the playback action is aborted.

In addition, when Brightness Adjustment Button 50 is pressed, MPU 26 recognizes the operation, and with the sequence program, the following test-of-action is carried out.

[0038]

In the blank region of the Photo-magnetic Recording Medium 28, there is sample image file stored in advance. MPU 26 reads out the sample image data and displays it on LCD Portion 29. At that time, MPU 26 conducts gain control of the brightness within the range of 0 decibels to 15 decibels and creates images in which the brightness of the sample image is changed sequentially. Therefore, on LCD Portion 29, the brightness of a sample image that is changing sequentially is displayed. When the display is finished and the test of the action is completed, MPU 26 displays the message, "The brightness adjustment function is normal." on LCD Portion 29.

[0039]

When there are some problems with the gain control or the brightness does not change with the values that have been set in advance, the message, "There is a problem with the brightness adjustment functions" is displayed and the test of the action is aborted.

(Effect of the Embodiment)

As described above, with the electronic camera of the present embodiment, the operator simply presses the operation button and a test of the action of the camera function that corresponds to the operation button is carried out and a diagnosis of whether the function is normal or not is automatically conducted. Therefore, it is possible for the operator to know quickly whether the camera is functioning normally or not, and when it is normal, they can relax and prepare for the shooting.

[0040]

It is possible, when the camera is switched to the diagnosis-of-action mode by Mode Switching Button 38, for a test of the action to be carried out automatically for all the camera functions. In addition, it is possible to determine whether it is possible to conduct shooting or not from the diagnostic results and the display of a message that indicates the possibility of taking pictures, such as, "All the functions are normal.", "There is some problem with the machine, however, you can take pictures." or "You cannot take pictures."

[0041]

Also, not only is it possible to indicate whether the camera functions are normal or abnormal, but also it is possible to indicate where the problem exists inside of the camera.

In addition, in the present embodiment, whether the camera is functioning normally or abnormally is displayed on LCD Portion 29, however, it is possible to transmit the results of the diagnosis using sound.

Furthermore, the recording medium is not limited to the photo-magnetic recording medium. It is possible to use a magnetic recording medium (which is not limited to a disc shape and includes the tape form), optical recording medium, or semiconductor recording medium (memory card).

[0042]

[Effect of the Invention]

The electronic camera described in Claim 1 automatically carries out a test of the action of each function of a camera when the diagnosis-of-action mode is selected. Therefore, the operator can confirm, in advance, whether the camera is working normally or not. Therefore, they can relax and prepare for the shooting.

[0043]

The electronic camera described in Claim 2 can carry out a test of the action of a photographic function that is designated through an external operation. Therefore, the operator can decide, easily and with certainty, whether the photographic function is normal or not.

The electronic camera described in Claim 3 can carry out a test of the action of a playback function that has been designated by an external operation. Therefore, the operator can decide, easily and with certainty, whether the photographic function is normal or not.

[0044]

With the electronic camera described in Claim 4, the results of a test of an action are displayed on the display screen and, therefore, the operator can easily check the diagnosis.

As described above, with an electronic camera utilizing the present invention, the operator can determine, in advance, whether the camera is normal or not. Therefore, they can relax and prepare for the shooting. In addition, they can easily understand the location of the problem so that it is easy to repair.

[Simple Explanation of Figures]

[Figure 1]

Principle block diagram of the invention described in Claim 1

[Figure 2]

Principle block diagram of the invention described in Claim 2

[Figure 3]

Principle block diagram of the invention described in Claim 3

[Figure 4]

Principle block diagram of the invention described in Claim 4

[Figure 5]

Structural block diagram of the present embodiment

[Figure 6]

Exterior of the present embodiment

[Figure 7]

Diagram showing the initial screen

[Figure 8]

Diagram showing the image quality adjustment screen

[Figure 9]

Flowchart that explains the action of the MPU during the diagnosis-of-action mode

[Figure 10]

Diagram to explain the embodiment

[Description of Part Number]

1. Image-Receptor Means
2. Recording Means
3. Playback Means
4. Mode Selection Means
5. Test-of-action Means
21. Main Body
22. Camera Portion
23. Photographic Lens
24. Image-receptor Element
25. A/D Conversion Portion
26. MPU
27. Data Access Portion
28. Photo-magnetic Recording Medium
29. LCD Portion
30. Touch Screen
31. Lens Driving Portion
32. Exposure Controlling Portion
33. Operation Button
34. Photography Button
35. Focus Button
36. Zoom Button

- 37. Exposure Button
- 38. Mode Switching Button
- 40. External Output Terminal
- 41. MO Attachment Portion
- 42. Reverse Button
- 43. Forward Button
- 44. Frame-reverse Button
- 45. Pause Button
- 46. Frame-advance Button
- 47. Reverse-play Button
- 48. Stop Button
- 49. Play Button
- 50. Brightness Adjustment Button
- 51. W. Balance Adjustment Button

[Name of the Document] Drawing

[Figure 1]

Principle block diagram of the invention described in Claim 1

1. Image-Receptor Means

2. Recording Means

3. Playback Means

4. Mode Selection Means

5. Test-of-action Means

(a) Electronic Camera

(b) Selection operation of diagnosis-of-action mode

(c) Recording Medium

[Figure 2]

Principle block diagram of the invention described in Claim 2

1. Image-Receptor Means

2. Recording Means

3. Playback Means

4. Mode Selection Means

5. Test-of-action Means

(a) Recording Medium

(b) Selection operation of diagnosis-of-action mode

[Figure 3]

Principle block diagram of the invention described in Claim 3

1. Image-Receptor Means

2. Recording Means

3. Playback Means

4. Mode Selection Means

5. Test-of-action Means

(a) Recording Medium

(b) Selection operation of diagnosis-of-action mode

(c) External operation of designating playback function

[Figure 4]

Principle block diagram of the invention described in Claim 4

1. Image-Receptor Means

2. Recording Means

3. Playback Means

4. Mode Selection Means

5. Test-of-action Means

(a) Electronic Camera

(b) Selection operation of diagnosis-of-action mode

(c) Recording Medium

[Figure 5]

Structural block diagram of the present embodiment

21. Main Body

22. Camera Portion

23. Photographic Lens

24. Image-receptor Element

25. A/D

26. MPU

27. Data Access Portion

28. Photo-magnetic Recording Medium

29. LCD Portion

30. Touch Screen

31. Lens Driving Portion

32. Exposure Control Portion

33. Operation Buttons

40.

[Figure 6]

Exterior of the present embodiment

21. Main Body

22. Camera Portion

23. Photographic Lens

34. Photography Button

35. Focus Button

36. Zoom Button

37. Exposure Button

38. Mode Switching Button

40. External Output Terminal

41. MO Attachment Portion

[Figure 7]

Diagram showing the initial screen

29. LCD Portion

42. Reverse Button

43. Fast-forward Button

44. Frame-reverse Button

45. Pause Button

46. Frame-advance Button

47. Reverse-play Button

48. Stop Button

49. Play Button

[Figure 8]

Diagram showing the image quality adjustment screen

29. LCD Portion

(a) Brightness

50. Brightness Adjustment Button

(b) W. balance

[Figure 9]

Flowchart that explains the action of the MPU during the diagnosis-of-action mode

Start

S1

When the photographic button is pressed, read in the sequence program in order to conduct the test-of-action for the photographic function

S2

Image processing and compressing and encoding of the photo-electric signals are carried out and image data is created

NO

S3

Image data created?

Yes

S4

Record as an image file for a test on a photo-magnetic recording medium

No

S5

Recorded on the photo-magnetic recording medium?

Yes

S6

Display message of "normal"

S7

Delete the image file for test

a) End

S8

Display message of "problem"

b) End

[Figure 10]

Diagram to explain the embodiment

(a) Regular Mode

(b) When Photography Button 34 is pressed the photographic action is carried out.

34. Photography Button

(c) Diagnosis-of-action Mode

(d) When Photography Button 34 is pressed, a test-of-action for the photographic

function is carried out. As a result, a message showing "normal" or "problem" is displayed on LCD Portion 29.

(e) The photographic function is normal

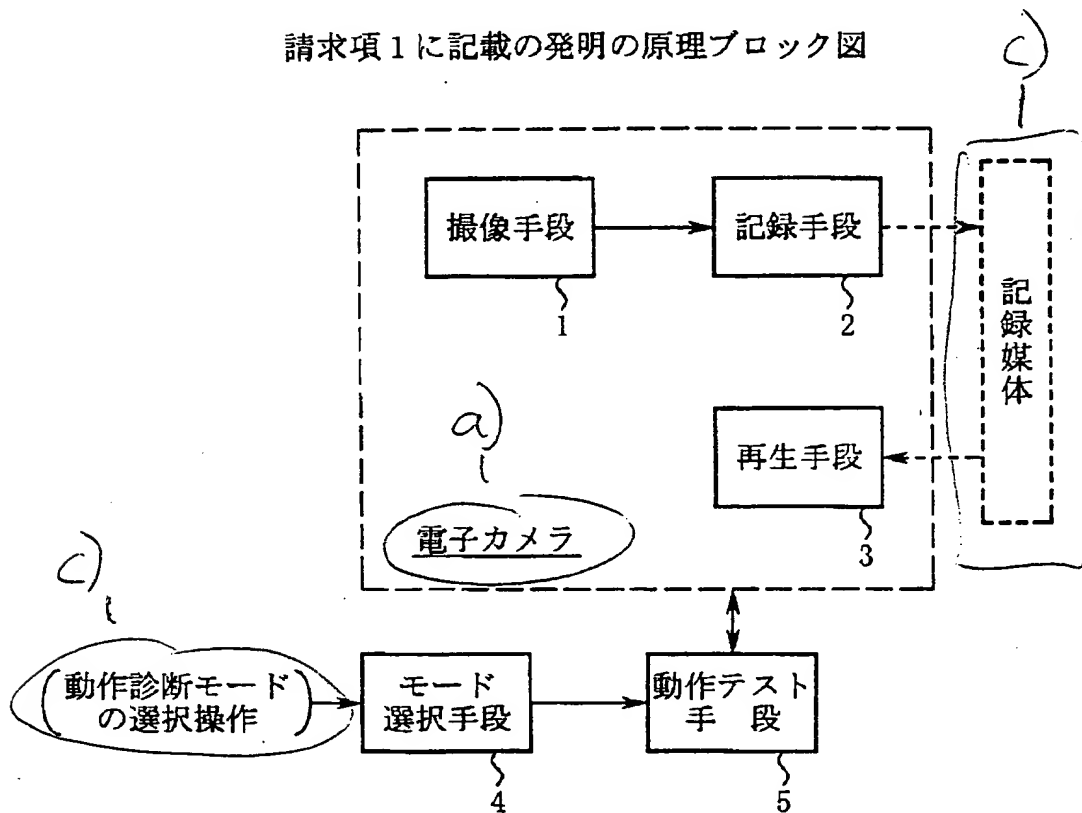
29. LCD Portion

34. Photography Button

【書類名】 図面

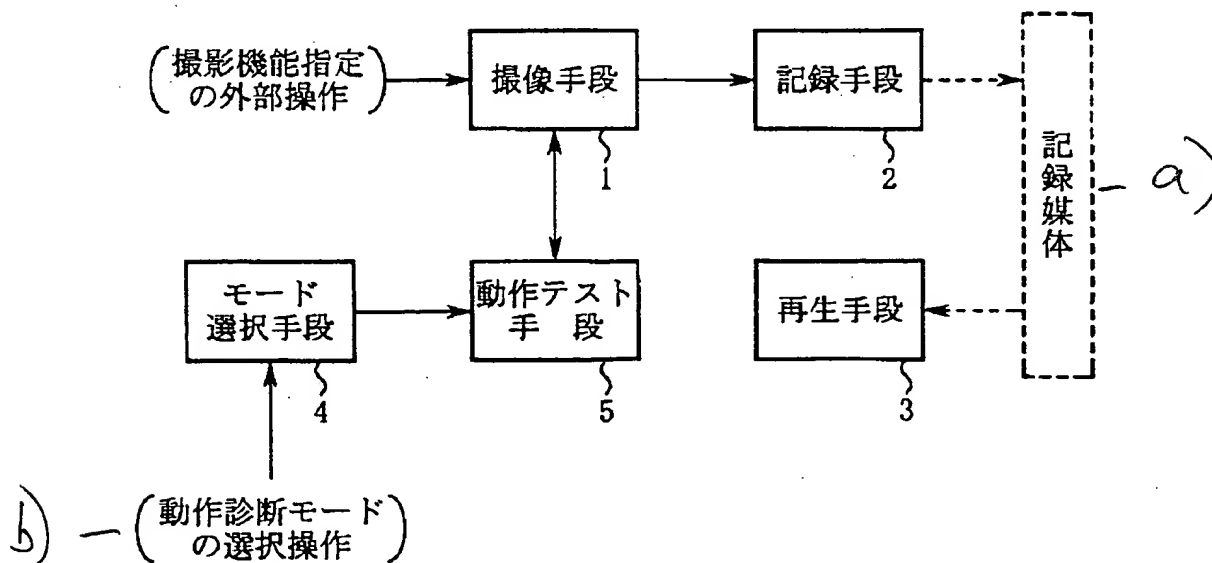
【図1】 Figure 1

請求項1に記載の発明の原理ブロック図



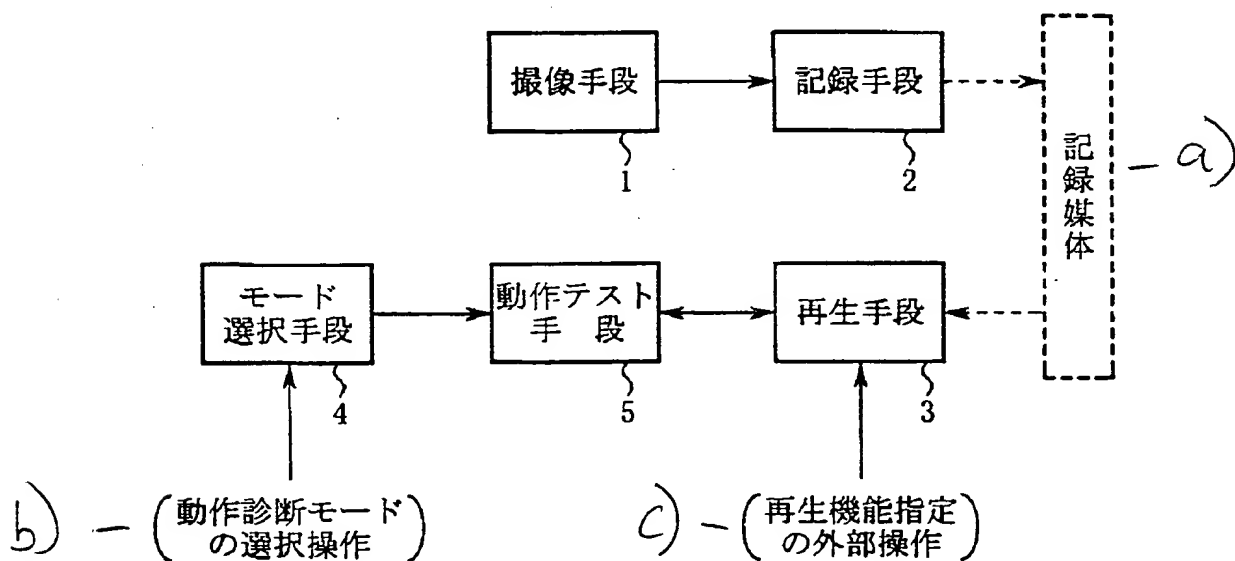
【図2】 Figure 2

請求項2に記載の発明の原理ブロック図



【図3】 Figure 3

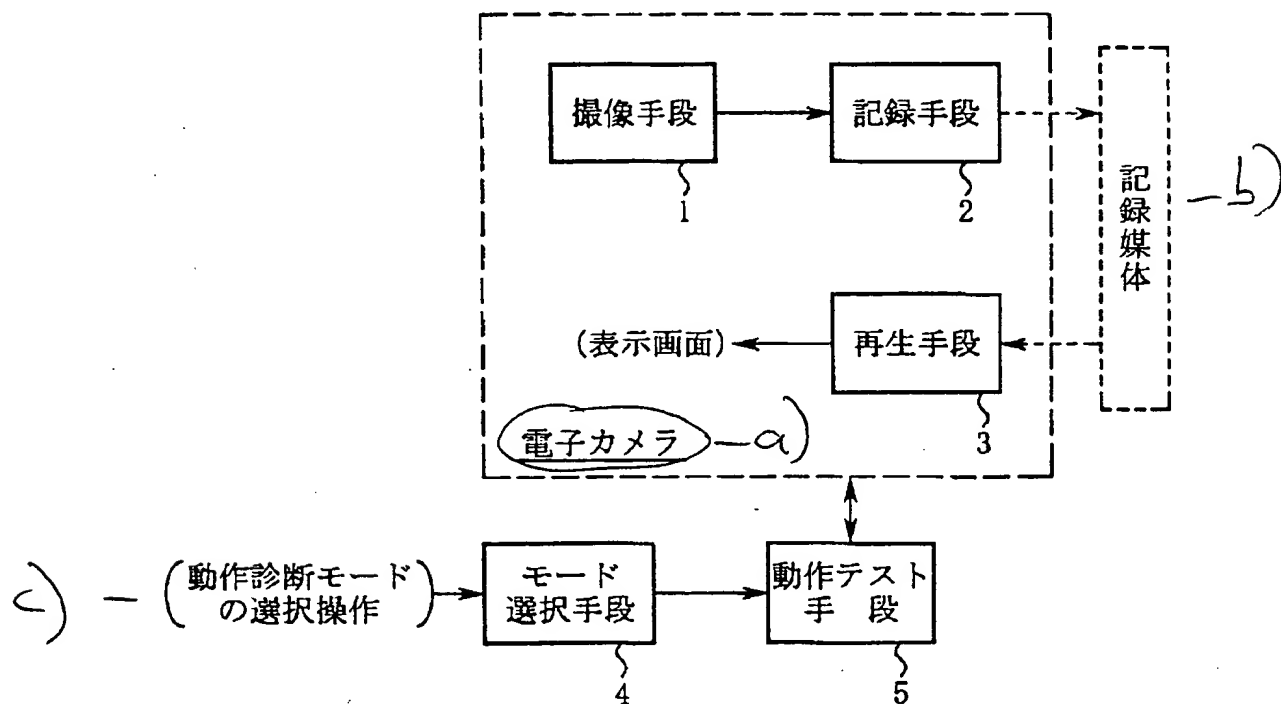
請求項3に記載の発明の原理ブロック図



【図4】

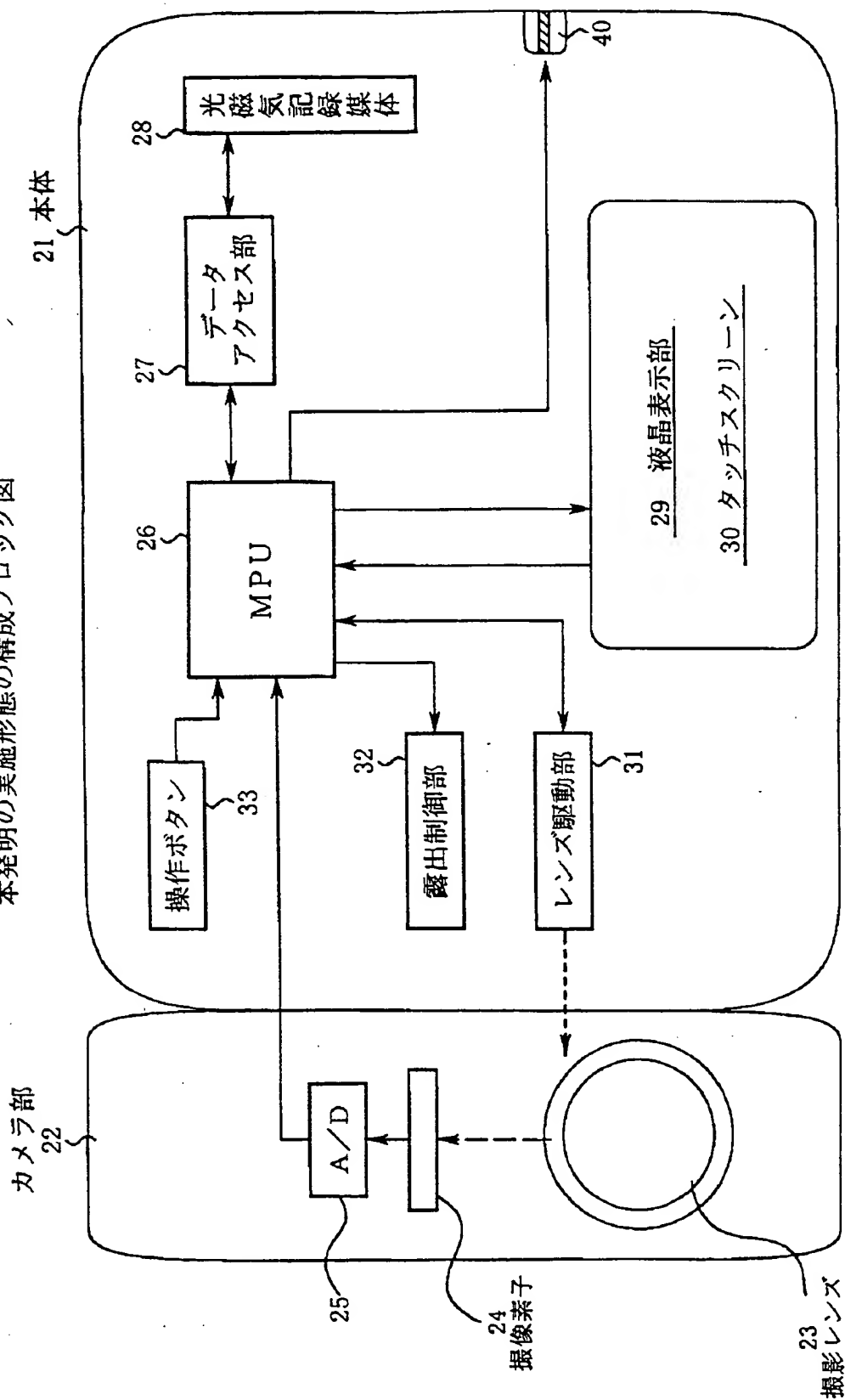
Figure 4

請求項4に記載の発明の原理ブロック図



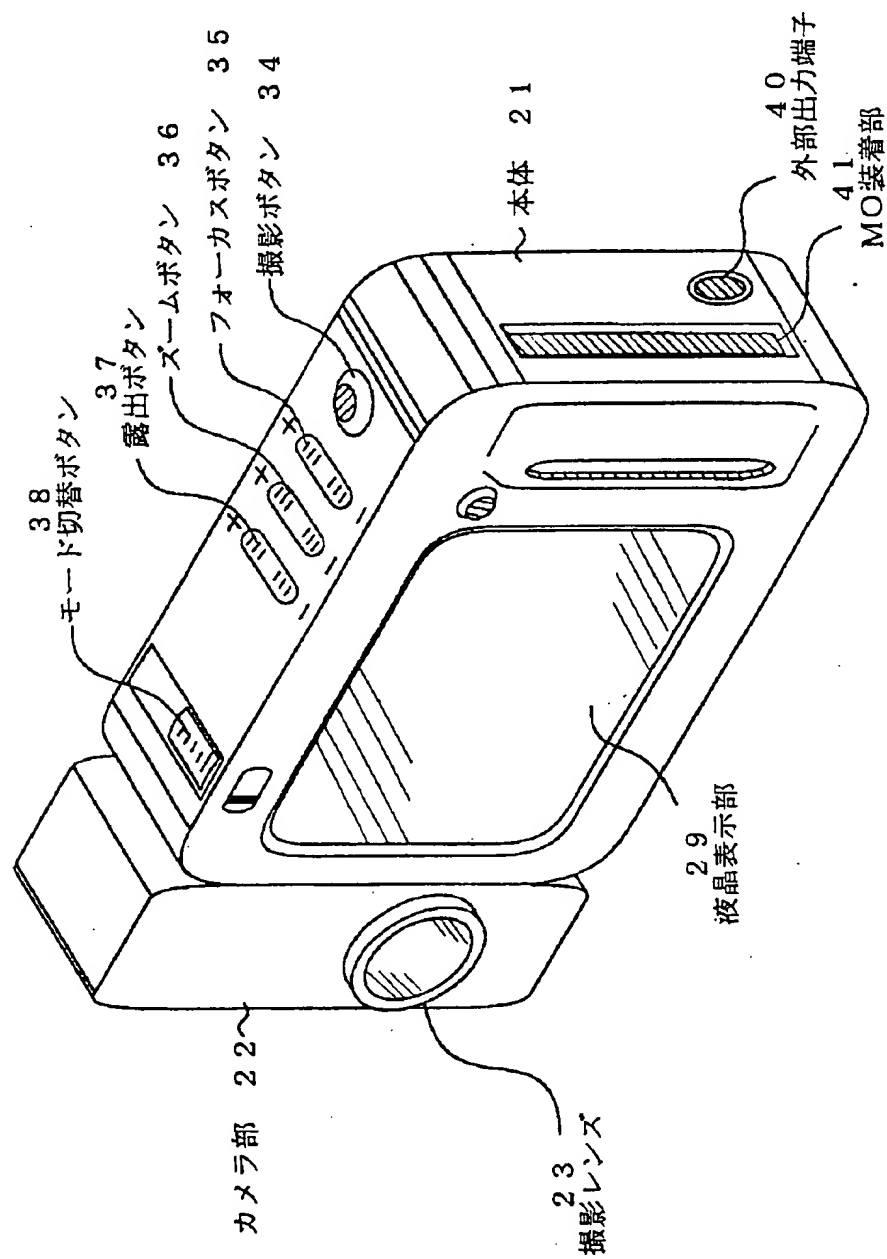
【図5】 Figure 5

本発明の実施形態の構成ブロック図



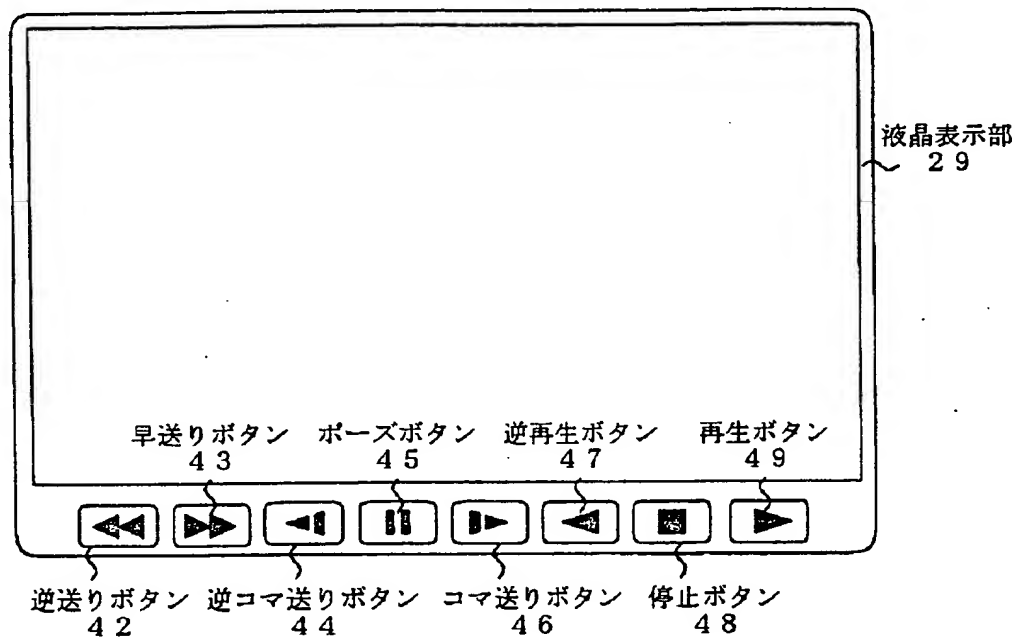
【図6】 Figure 6

本発明の実施形態の外観図



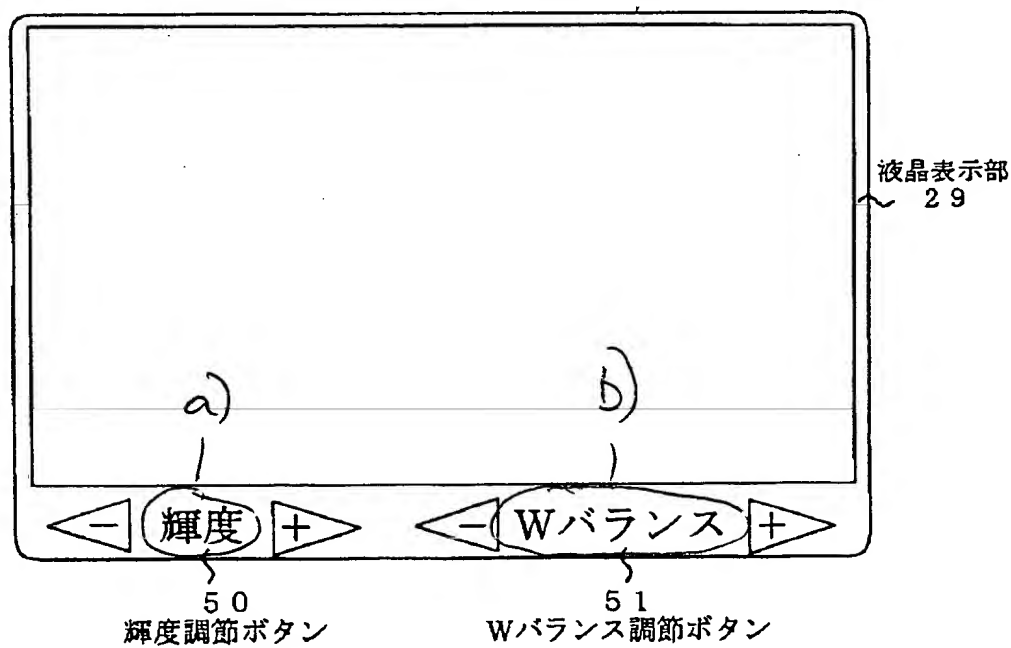
【図7】 Figure 7

初期画面を示す図



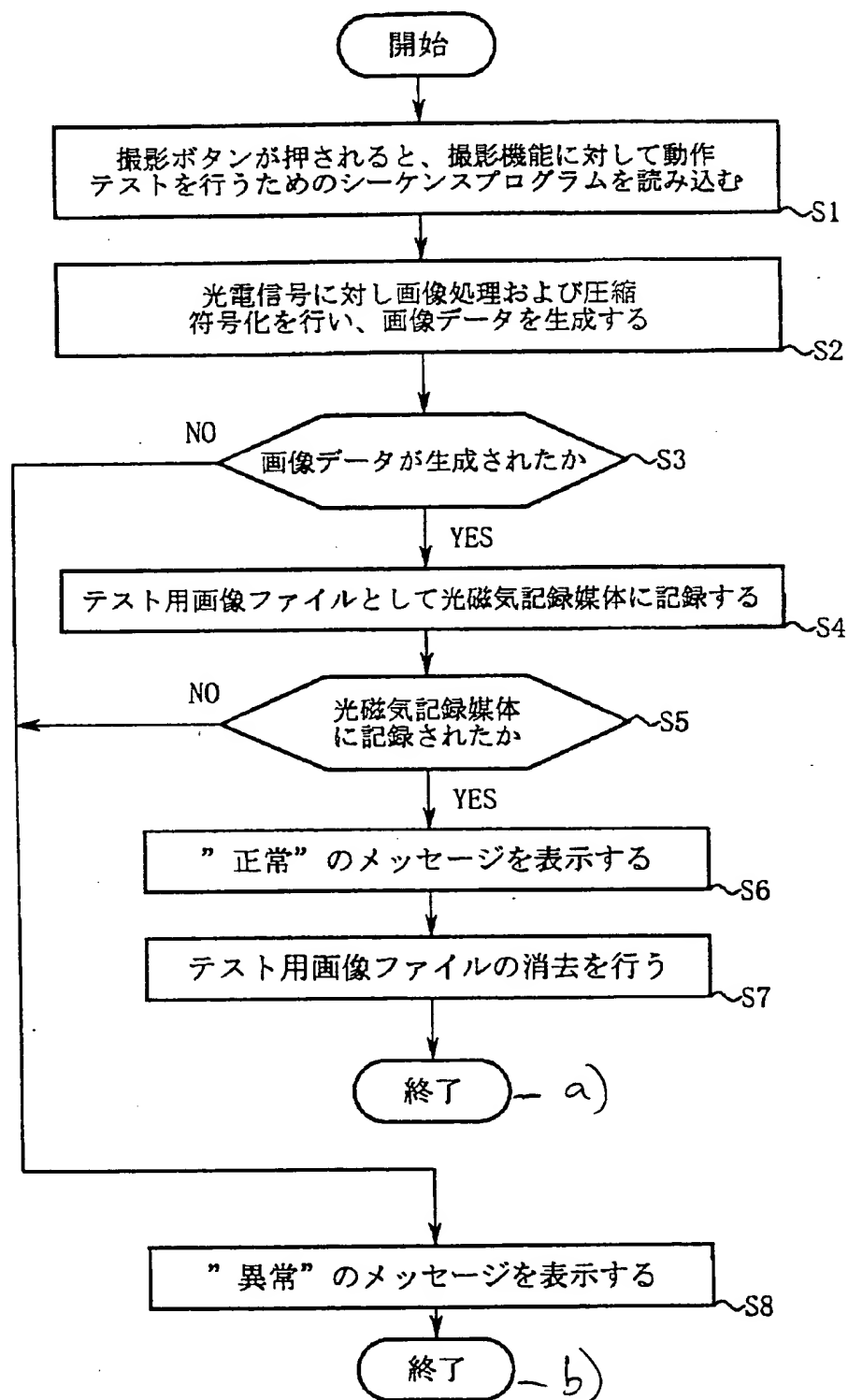
【図8】 Figure 8

画質調節画面を示す図



【図 9】 Figure 9

動作診断モードにおけるMPUの動作を説明する流れ図

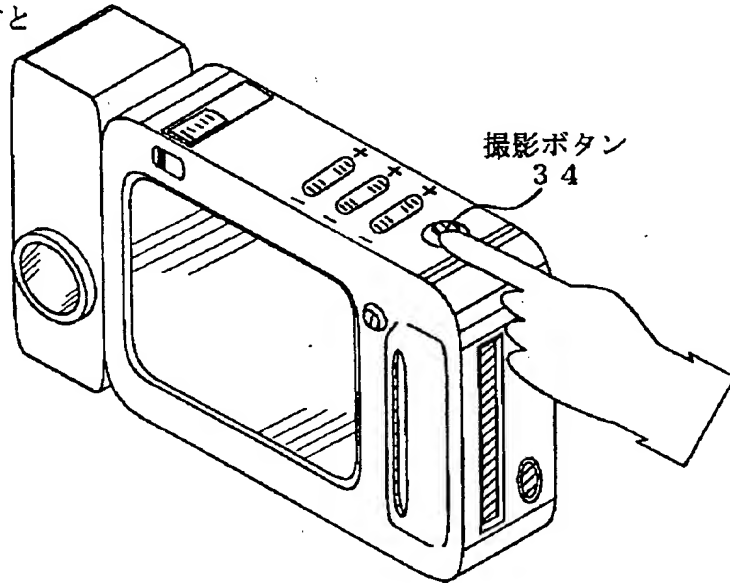


【図10】 Figure 10

実施形態を説明する図

a) - 通常モード

b) - 撮影ボタン34を押すと
撮影動作が行われる



c) - 動作診断モード

d) - { 撮影ボタン34を押すと
撮影機能に対して動作
テストを行う
その結果"正常"又は
"異常"のメッセージ
が液晶表示部29に
表示される

